

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 88-114
NPDES NO. CA0028720

SITE DISCHARGE REQUIREMENTS FOR:

SIGNETICS CORPORATION
811 EAST ARQUES AVENUE FACILITY
SUNNYVALE, SANTA CLARA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region (hereafter called the Board), finds that:

1. Signetics Corporation (hereinafter called the discharger) manufactures printed circuits at a facility located on 811 E. Arques Avenue, Sunnyvale. The discharger submitted an application dated October 28, 1987 for renewal of waste discharge requirements and a permit to discharge wastes under the National Pollutant Discharge Elimination System.
2. Studies by the discharger show that groundwaters beneath the site and the adjacent facility at 440 Wolfe Road have been polluted by organic solvents such as trichloroethylene (TCE), 1,1,1 trichloroethane (TCA), cis-1,2-dichloroethene, Freon 113, xylenes, ethylbenzene, dichlorobenzene. Investigations undertaken by Signetics Corporation in cooperation with Advanced Micro Devices, Inc. (AMD) and TRW, Inc. indicated that chemicals from all three companies sites had migrated in the groundwater to form a merged plume of pollution extending to a depth of 75 feet and lateral distance over 2,000 feet downgradient of Signetics Corporation's facility on 811 E. Arques Avenue.
3. The discharger has undertaken independent remedial action to address onsite pollution and has undertaken joint remedial action with AMD, Inc. and TRW, Inc. to address offsite pollution.
4. Onsite remedial action facilities consist of extraction trenches at 811 East Arques and at 440 Wolfe Road, and air stripping/carbon adsorption groundwater treatment facilities located at 440 Wolfe Road.
5. Waste 001 consists of approximately 150,000 gallons per day (gpd) of reject water from a reverse osmosis water purification system. This waste is discharged via storm drain, to Calabazas Creek, Guadalupe Slough and South San Francisco Bay. Waste 002 consists of approximately 300,000 gpd of onsite treated groundwater which is discharged to Sunnyvale East Channel, Guadalupe Slough and South San Francisco Bay.

6. The Regional Board adopted a revised Water Quality Control Plan for the San Francisco Bay Region (Basin Plan) on December 17, 1986. The Basin Plan contains water quality objectives for South San Francisco Bay and contiguous surface and groundwater.
7. The beneficial uses of Sunnyvale East channel, Lower Calabazas Creek, and South San Francisco Bay include:
 - : Contact and Non-contact water recreation
 - : Wildlife habitat
 - : Preservation of rare and endangered species
 - : Estuarine habitat
 - : Fish spawning and migration
 - : Industrial service supply
 - : Navigation
8. The Basin Plan prohibits discharge of wastewater which has "particular characteristics of concern to beneficial uses" (a) "at any point in San Francisco Bay south of the Dumbarton Bridge" and (b) "at any point where the wastewater does not receive a minimum initial dilution of at least 10:1 or into any nontidal water, deadend slough, similar confined water, or any immediate tributary thereof".
9. The Basin Plan allows for exceptions to the prohibitions referred to in Finding 7 above when it can be demonstrated that a net environmental benefit can be derived as a result of the discharge.
10. Exceptions to the prohibitions referred to in Finding 10 are warranted because the discharge is an integral part of a program to cleanup polluted groundwater and thereby produce an environmental benefit, and because receiving water concentrations are expected to be below levels that would effect beneficial uses. Should studies indicate chronic effects not currently anticipated, the Board will review the requirements of this order based up Section B.1.e.
11. The Basin Plan prohibits discharge of "all conservative toxic and deleterious substances, above those levels which can be achieved by a program acceptable to the Board, to waters of the Basin." The discharger's groundwater extraction and treatment system and associated operation, maintenance, and monitoring plan constitutes an acceptable control program for minimizing the discharge of toxicants to waters of the State.
12. Effluent limitations of this Order are based on the Basin Plan, State Plans and policies, U.S. Environmental Protection Agency guidance, and best professional judgment as to best available technology economically achievable.

13. The issuance of waste discharge requirements for this discharge is exempt from the provisions of Chapter 3 (commencing with section 21100) of Division 13 of the Public Resources Code (CEQA) pursuant to Section 13389 of the California Water Code.
14. The Board has notified the discharger and interested agencies and persons of its intent to issue waste discharge requirements for the discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
15. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that the discharger, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, shall comply with the following:

A. Effluent Limitations

1. The discharge of an effluent for 001 in excess of the following is prohibited (Instantaneous Maximum):
 - a. Total dissolved Solids mg/l 2000
 - b. Chlorine mg/l 0.0
2. The discharge of an effluent for 002 in excess of the following is prohibited:

<u>Constituent</u>	<u>Units</u>	<u>Instantaneous Maximum</u>
Trichloroethylene	mg/l	0.005
1,1,1-trichlorethane	mg/l	0.005
1,1-dichloroethylene	mg/l	0.005
Tetrachloroethylene	mg/l	0.005
Trichlorofluoromethane	mg/l	0.005
Xylenes	mg/l	0.005
Ethylbenzene	mg/l	0.005
Dichlorobenzene	mg/l	0.005

3. In any representative set of samples, the discharges shall meet the following limit of quality:

TOXICITY:

The survival of test fishes in 96 hour bioassays of the effluent as discharged shall be a median of 90% survival and a 90 percentile value of not less than 70 percent survival.

B. Receiving Water Limitations

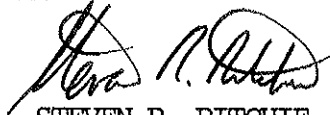
1. The discharge of wastes shall not cause the following conditions to exist in waters of the State at any place:
 - a. Floating, suspended, or deposited macroscopic particulate matter or foam;
 - b. Bottom deposits or aquatic growths;
 - c. Alternation of temperature or apparent color beyond present natural background levels;
 - d. Visible, floating, suspended, or deposited oil or other products of petroleum origin;
 - e. Toxic or other deleterious substances to be present in concentrations or quantities which will cause deleterious effects on aquatic biota, wildlife, or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentration.
2. The discharge of waste shall not cause the following limits to be exceeded in waters of the State in any place within one foot of the surface:
 - a. Dissolved oxygen 5.0 mg/l minimum -median for any three consecutive months no less than 80% saturation. When natural factors cause lesser concentration (s) than specified above, the discharge shall not cause further reduction of the concentration of dissolved oxygen.
 - b. pH the pH shall not be depressed below 6.5 nor raised above 8.5, nor caused to vary from normal ambient pH levels by more than 0.5 units.
 - c. Un-ionized ammonia 0.025 mg/l Annual Median
 (as N) 0.4 mg/l Maximum at any time.

3. The discharge shall not cause a violation of any applicable water quality standards for receiving waters adopted by the Board or the State Water Resources Control Board as required by the Clean Water Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Clean Water Act, or amendments thereto, the Board will revise and modify this Order in accordance with such more stringent standards

C. Provisions

1. The discharger shall comply with all sections of this order immediately upon adoption.
2. The discharger shall comply with the self-monitoring program as adopted by the Board and as may be amended by the Executive Officer.
3. The discharger shall notify the Regional Board if any activity has occurred or will occur which would result in the discharge, on a frequent or routine basis, of any toxic pollutant which is not limited by this Order.
4. The discharger shall comply with all items of the attached "Standard Provisions, Reporting Requirements and Definitions" dated December 1986, except items A.10, B.2, B.3, C.8, and C.11.
5. This Order supercedes Order No. 83-12. Order No. 83-12 is hereby rescinded.
6. This Order expires July 20, 1993. The discharger must file a report of waste discharge in accordance with Title 23, Chapter 3, Subchapter 9 of the California Administrative Code not later than 180 days in advance of such expiration date as application for issuance of new waste discharge requirements.
7. This Order shall serve as a National Pollutant Discharge Elimination System Permit pursuant or Section 402 of the Clean Water Act or amendments thereto, and shall become effective 10 days after date of this adoption provided the Regional Administrator, Environmental Protection Agency, has no objection. If the Regional Administrator objects to its issuance, the permit shall not become effective until such objection is withdrawn.

I, Steven R. Ritchie, Executive Officer do hereby certify the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region on July 20, 1988.

A handwritten signature in black ink, appearing to read 'Steven R. Ritchie', is written over a circular stamp or seal.

STEVEN R. RITCHIE
Executive Officer

Attachments:

Standard Provisions & Reporting
Requirements, December 1986
Self-Monitoring Program

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

T E N T A T I V E

SELF-MONITORING PROGRAM

FOR

SIGNETICS CORPORATION

811 E. ARQUES AVENUE FACILITY

SUNNYVALE, SANTA CLARA COUNTY

NPDES NO. CAO028720

CONSISTS OF

PART A, dated December 1986 and modified January 1987,
including Appendices A through E

PART B, Adopted: July 20, 1988

PART B

I. DESCRIPTION OF SAMPLING STATIONS

A. INFLUENT

Stations

Description

I-2 At a point in the groundwater extraction/treatment system immediately prior to treatment.

B. EFFLUENT

Stations

E-1 At any point in the outfall where all of Waste 001 is present.

E-2 At a point in the groundwater extraction/treatment system immediately following treatment (Waste 002).

C. RECEIVING WATERS

RW-1 At a point in storm drain at least 100 yards but not more than 200 yards down stream from station E-001

RW-2 At a point in the Sunnyvale East Channel at least 100 feet but no more than 200 feet down-stream from the storm sewer discharge point.

II. SCHEDULE OF SAMPLING AND ANALYSIS

A. The schedule of sampling and analysis shall be that given in Table I.

III. MISCELLANEOUS REPORTING

If any chemical additives are proposed to be used in the operation of the treatment system it shall be reported 30 days prior to their use.

IV. MODIFICATION TO PART A

A. Deletions:

Sections D.2.e, D.2.g, D.3.b, E.1.e, E.1.f, E.3., and E.4.

G.4.e.1 Influent and Effluent Data Summary Reports shall be submitted only to the Regional Board Executive Officer, not to the EPA.

T A B L E I
SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

Sampling Station	I-2	E-1	E-2	C-1	C-2	
Type of Sample	G	G	G	G	G	
Flow Rate (Gal/Day)	D	D	D			
pH (units)			M		2/Y	
Dissolved Oxygen (mg/l and % Saturation)					2/Y	
Temperature (C)					2/Y	
Total Dissolved Solids (mg/l)		W				
Chlorine		W				
Fish Tox'y 96-hr. TL % Surv'l in undiluted waste		Y	Y			
GC/MS Scan (EPA 624) (mg/l)			Y			
Trichloroethylene (TCE)	M		2/M*		2/Y	
Trichloroethane (TCA)	M		2/M*		2/Y	
1,1-dichloroethylene	M		2/M*		2/Y	
Tetrachloroethylene	M		2/M*		2/Y	
Trichlorofluoromethane	M		2/M*		2/Y	
Xylenes	M		2/M*		2/Y	
Ethylbenzene	M		2/M*		2/Y	
Dichlorobenzene	M		2/M*		2/Y	
Priority Pollutant Scan (Including Metals)			Q/Y			

LEGEND FOR TABLE

- G = Grab Sample
- W = Once each week
- M = Once each month
- Q = Quarterly, once in March, June, September, and December
- Q/Y = Quarterly for six months and once a year thereafter
- 2/Y = Once in March and September
- 2/M* = Weekly for the first three (3) months of startup of operation;
reduced to twice a month thereafter.
- Y = Once a year
- O = One time only within 3 months of startup or upon
commencement of discharge